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IN THE CLAIMS

1. (Currently Amended) A method of monitoring and controlling manufacturing processes within a multi-step manufacturing system having independently operating tools that perform specific processes upon a workpiece, comprising:

testing a workpiece after ~~one or more steps~~ a specific processing step of a plurality processing steps are performed ~~of processing~~ within one or more independently operating tools;

generating control parameters for at least one processing step selected from the group consisting of processing steps occurring previous and to the specific processing step and processing steps occurring after a processing step subsequent to the specific processing step ~~steps~~ that ~~are~~ is to be performed or have been performed on the workpiece by the independently operating tools; and

selectively supplying said control parameters to either the previous processing ~~step~~ steps or the subsequent processing ~~step~~ steps, or both to optimize the processing performed upon the workpiece or a subsequently processed workpiece.

2. (Original) The method of claim 1 wherein the workpiece is a semiconductor wafer and the independently operating tools are semiconductor wafer processing tools.

3. (Currently Amended) The method of claim 2 wherein the independently operating tools comprise one ~~ere~~ or more of: etch chamber, chemical-mechanical polishing tool, electrochemical plating cell, a physical vapor deposition chamber and a chemical vapor deposition chamber.

4. (Original) The method of claim 1 wherein said testing step is performed by at least one metrology station.

5. (Original) The method of claim 4 wher in said at least one metrology station performs blanket wafer tests and patterned wafer tests.

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6. (Original) The method of claim 2 wherein said semiconductor wafer processing tools comprise an electrochemical plating tool and a chemical mechanical polishing tool.

7. (Original) The method of claim 6 wherein said testing step measures a uniformity and thickness of a layer deposited upon the semiconductor wafer using the electrochemical plating tool.

8. (Original) The method of claim 7 wherein said generating step produces control parameters for said chemical mechanical polishing tool comprising a pad rotational speed and a pad center-to-edge pressure profile.

9. (Currently Amended) A method of monitoring and controlling manufacturing processes within a multi-step integrated circuit manufacturing system having independently operating process tools that perform specific processes upon a semiconductor wafer, comprising:

testing a semiconductor wafer after ~~one or more steps of processing a specific processing step of a plurality processing steps performed~~ within one or more independently operating tools;

generating control parameters for at least one processing step selected from the group consisting of processing steps occurring previous and to the specific processing step and processing steps occurring after a processing step subsequent to the specific processing steps step that are is to be performed or have been performed on the semiconductor wafer by the independently operating tools; and

selectively supplying said control parameters to either the previous processing step steps or the subsequent processing step steps, or both to optimize the processing performed upon the semiconductor wafer or a subsequently processed semiconductor wafer.

10. (Original) The method of claim 9 wherein the Independently operating tools comprise one ore more of: etch chamber, chemical-mechanical polishing tool,

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electrochemical plating cell, a physical vapor deposition chamber and a chemical vapor deposition chamber.

11. (Original) The method of claim 9 wherein said testing step is performed by at least one metrology station.

12. (Original) The method of claim 11 wherein said at least one metrology station performs blanket wafer tests and patterned wafer tests.

13. (Currently Amended) The method of claim 9 wherein said independently operating process tools comprise an electrochemical plating tool and a chemical mechanical polishing tool.

14. (Original) The method of claim 13 wherein said testing step measures a uniformity and thickness of a layer deposited upon the semiconductor wafer using the electrochemical plating tool.

15. (Original) The method of claim 14 wherein said generating step produces control parameters for said chemical mechanical polishing tool comprising a pad rotational speed and a pad center-to-edge pressure profile.

16-21. (Cancelled)